Marine Safety Center Guidelines for Review of MODU Stability Calculations

Procedure Number T1-33 Revised 4/13/2000

References

a. 46 CFR Subchapter L, Part 174 Subpart C

Disclaimer

These guidelines were developed by the Marine Safety Center staff as an aid in the preparation and review of vessel plans and submissions. They were developed to supplement existing guidance. They are not intended to substitute or replace laws, regulations, or other official Coast Guard policy documents. The responsibility to demonstrate compliance with all applicable laws and regulations still rests with the plan submitter. The Coast Guard and the U. S. Department of Transportation expressly disclaim liability resulting from the use of this document.

Contact Information

If you have any questions or comments concerning this document, please contact the Marine Safety Center by e-mail or phone. Please refer to the Procedure Number: T1-33

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General Review Guidance

If the vessel's stability is being reviewed under Navigation and Vessel Inspection Circular (NVIC) No. 3-97, "Stability Related Review Performed by the American Bureau of Shipping for U.S. Flag Vessels," then MSC review of stability items is not required.

Check that the following items are included in the submittal package:

- ❑ General Arrangement and Profiles Drawings (with compartmentation)
- ❑ Lines Plan or computer disk with hull model (GHS is preferred)
- ❑ Hydrostatics or Curves of Form
- ❑ Tank Capacity Tables
- ❑ Maximum KG Curve or Table
- ❑ Calculation of light ship values from stability test data
- ❑ Sample Loading Conditions
- ❑ Location of downflooding points
- ❑ Damage Stability Calculations

Intact Stability

Ensure intact stability calculations are submitted for each of the MODU's normal operating conditions using 70 knots winds and for each of it's severe storm conditions using 100 knot winds (46 CFR 174.045).

Ensure submitted maximum KG curve or table accounts for worst case or specific load case trim.

Ensure maximum deck load from sample loading conditions is equal to the maximum deck load specified in the vessel's leg strength calculations.

Ensure sample load case VCG's fall below maximum KG curve (46 CFR 174.065).

Damage Stability

Ensure damage stability calculations required by 46 CFR 174.065 use 50 knot winds.

For Self-Elevating Units: Ensure damage stability calculations are submitted for each compartment within 5 'of the hull, between two adjacent watertight bulkheads, the bottom shell and the uppermost continuous deck (46 CFR 174.080(a)).

For Column Stabilized Units: Ensure damage stability calculations are submitted for watertight compartments that are outboard of, or transversed by, a plane which connects the vertical centerlines of the columns on the periphery of the unit, and within 5 'of an outer surface of the column or footing on the periphery of the unit (46 CFR 174.085(a)).

Ensure submitted maximum KG curves or tables (normal operating condition(s) and severe storm condition(s)) are a composite of the maximum KG curve determined from intact stability plus the maximum KG curve determined from damage stability for each of its normal operating conditions and severe storm conditions.

Load Line

MODU's are required to have a load line, and are required to comply with the provisions of 46 CFR, Subpart E

- Ensure the lesser of stability drafts or Geometry Load Line drafts govern.

Hull Model

The MSC will generate a hull model from the lines, offsets or provided computer disk using GHS to verify the stability of the vessel.

Definitions

- Downflooding Point: The lower edge of an opening through which progressive flooding may take place.